

Having described the invention, I claim the following:

1. A tire parameter sensing system for a vehicle having at least one tire, the tire parameter sensing system comprising:

a tire-based unit associated with the at least one tire for sensing a parameter of the at least one tire and for transmitting a tire parameter signal indicative of the sensed parameter;

a transceiver device located on the vehicle for receiving the tire parameter signal and for transmitting a relay signal indicative of the received tire parameter signal;

a vehicle-based unit mounted on the vehicle in a location spaced away from the transceiver device, the vehicle-based unit adapted to receive both the tire parameter signal and the relay signal; and

an indicator coupled to the vehicle-based unit for providing an indication of the sensed parameter of the at least one tire,

the vehicle-based unit controlling the indicator in response to receiving at least one of the tire parameter signal and the relay signal.

2. The tire parameter sensing system of claim 1 wherein the tire-based unit transmits the tire parameter signal at a first predetermined frequency and wherein the transceiver device transmits the relay signal at a second, different predetermined frequency.

3. The tire parameter sensing system of claim 2 wherein the transceiver device includes first circuitry for demodulating the received tire parameter signal having the first predetermined frequency and outputting a message packet having information indicating the sensed parameter of the at least one tire, the transceiver device also including second circuitry for receiving the message packet from the first circuitry and for modulating the message packet onto the relay signal having the second predetermined frequency.

4. The tire parameter sensing system of claim 2 wherein the transceiver device includes an oscillator for providing a reference signal and a mixer for mixing the received tire parameter signal having the first predetermined frequency with the reference signal to

provide the relay signal having the second predetermined frequency.

5. The tire parameter sensing system of claim 1 wherein a time delay spaces the relay signal in time relative to the tire parameter signal.

6. The tire parameter sensing system of claim 5 wherein the time delay is a random time delay, the transceiver device including structure for providing the random time delay between the tire parameter signal and the relay signal.

7. The tire parameter sensing system of claim 6 wherein the structure of the transceiver device includes first circuitry for demodulating the received tire parameter signal and outputting a message packet having information indicating the sensed parameter of the at least one tire, a controller for determining the random time delay and for outputting the message packet after the random time delay has elapsed, and second circuitry for modulating the message packet onto the relay signal.

8. The tire parameter sensing system of claim 5 wherein the tire-based unit transmits the tire parameter signal at a first predetermined frequency and wherein the transceiver device transmits the relay signal at a second, different predetermined frequency.

9. The tire parameter sensing system of claim 1 wherein the transceiver device includes a power supply for providing electrical energy to the transceiver device.

10. The tire parameter sensing system of claim 9 wherein the power supply includes a plurality of batteries and a switch for connecting one of the batteries to the transceiver device, a control device being responsive to diminished power from the connected battery for disconnecting the connected battery and connecting another one of the plurality of batteries to the transceiver device.

11. The tire parameter sensing system of claim 9 further including a vehicle motion sensor for connecting the power supply to the transceiver device when the vehicle is in motion and for disconnecting the

power supply from the transceiver device when the vehicle is stationary.

12. The tire parameter sensing system of claim 1 wherein the vehicle includes at least one front tire that is located near a front of the vehicle and at least one rear tire that is located near the rear of the vehicle, the vehicle-based unit being mounted to the vehicle near the at least one front tire and the transceiver device being mounted to the vehicle near the at least one rear tire.

13. A method of monitoring a parameter of at least one tire of a vehicle, the method comprising the steps of:

sensing the parameter of the at least one tire;

transmitting a tire parameter signal indicative of the sensed parameter;

receiving the tire parameter signal at a first location;

transmitting a relay signal from the first location, the relay signal being indicative of the received tire parameter signal;

monitoring at a second location for both the tire parameter signal and the relay signal; and

displaying an indication of the sensed parameter in response to receiving at least one of the tire parameter signal and the relay signal at the second location.

14. The method of claim 13 wherein the step of transmitting a tire parameter signal includes the step of transmitting at a first predetermined frequency and wherein the step of transmitting a relay signal from the first location includes transmitting at a second, different predetermined frequency.

15. The method of claim 13 further including the step of spacing the transmission of the relay signal from the receipt of the tire parameter signal at the first location by a time delay.

16. The method of claim 15 wherein the step of spacing the transmission of the relay signal from the receipt of the tire parameter signal at the first location by a time delay further includes the step of determining a random time delay.

17. The method of claim 15 wherein the step of transmitting a tire parameter signal includes the step of transmitting at a first predetermined frequency and wherein the step of transmitting a relay signal from the first location includes transmitting at a second, different predetermined frequency.